

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
12 January 2006 (12.01.2006)

PCT

(10) International Publication Number  
WO 2006/004302 A1

(51) International Patent Classification<sup>7</sup>: H04N 7/12

(21) International Application Number: PCT/KR2005/000965

(22) International Filing Date: 1 April 2005 (01.04.2005)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:  
10-2004-0022643 1 April 2004 (01.04.2004) KR  
10-2004-0064329 16 August 2004 (16.08.2004) KR

(71) Applicant (for all designated States except US): ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE [KR/KR]; 161, Gajeong-dong, Yuseong-gu, Daejeon 305-350 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): KIM, Sung-Hoon [KR/KR]; #230-304, Galma Apt., Galma-dong, Seo-gu, Daejeon 302-170 (KR). JI, Kum-Ran [KR/KR]; 167, Manyeon-ri, Hwasun-eup, Hwasun-gun, Jeollanam-do 519-806 (KR). LEE, Jae-Young [KR/KR]; #514-201, Jungsung Apt., Jamsil 5-dong, Songpa-gu, Seoul 138-916 (KR). KIM, Seung-Won [KR/KR]; #105-202, Gukhwadong-sung Apt., Samcheon-dong, Seo-gu, Daejeon 302-782 (KR). LEE, Soo-In [KR/KR]; #106-606, Clover Apt.,

(74) Agent: SHINSUNG PATENT FIRM; 2-3F, Line Bldg., 823-30, Yeoksam-dong, Gangnam-ku, Seoul 135-080 (KR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

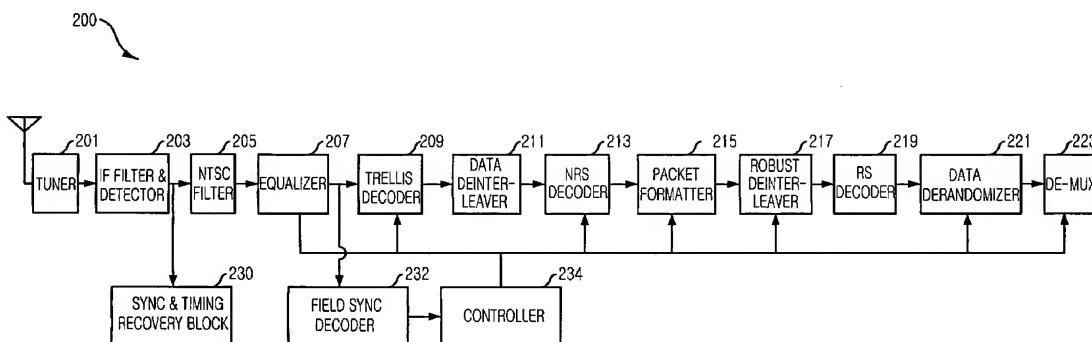
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

— with international search report

[Continued on next page]

(54) Title: APPARATUS AND METHOD FOR RECEIVING DIGITAL TELEVISION SIGNAL WITH BACKWARD COMPATIBILITY BYTE



(57) Abstract: Provided are a Vestigial Side Band (VSB) digital television (DTV) receiver based on is A/53 of the Advanced Television System Committee (ATSC) that can secure backward compatibility of a low-ranked DTV receiver by using parity bytes added to robust data for error correction and obtain RS coding gain from the robust data, and a method thereof. The DTV receiver includes: a receiving unit for receiving a transmission signal including general data and robust data and converting the transmission signal into a base-band signal; an equalizer for determining a symbol level of the transmission signal; a trellis decoder for performing trellis decoding on a symbol of the determined level; a nonsystematic Reed Solomon (NRS) decoder for performing NRS decoding on the trellis-decoded robust data and correcting an error; and a restoring unit for restoring a digital video data stream with respect to the trellis-decoded general data and the NRS-decoded robust data.

WO 2006/004302 A1



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*